#23 and 1655

Attorney's Docket No. 9310-22

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Goudsmit, et al.
Serial No: 09/463,352 Group Art Unit: 1655
Filed: 21 January 2000 Examiner: B. Sisson
For: *NUCLEIC ACID SEQUENCES THAT CAN BE USED AS PRIMERS AND PROBES IN THE AMPLICATION AND DETECTION OF ALL SUBTYPES OF HIV-1*

September 5, 2002

Commissioner for Patents
Washington, DC 20231

RESPONSE

This is in response to the Official Action of April 5, 2002.

Please enter the following amended claims:

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1 (twice amended). A pair of oligonucleotide primers, for use as a single primer set in the amplification of a target sequence located within the LTR region of the genome of HIV-1, said primer pair consisting essentially of a first hybridizing oligonucleotide being 10-26 nucleotides in length and comprising at least a fragment of 10 sequential nucleotides of a sequence selected from the group consisting of:
SEQ ID 1: G GGC GCC ACT GCT AGA GA;
SEQ ID 2: G TTC GGG CGC CAC TGC TAG A;
SEQ ID 3: CGG GCG CCA CTG CTA;
and a second hybridizing oligonucleotide being 10-26 nucleotides in length and comprising at least a fragment of 10 sequential nucleotides of a sequence selected from the group consisting of:
SEQ ID 4: CTG CTT AAA GCC TCA ATA AA;
SEQ ID 5: CTC AAT AAA GCT TGC CTT GA;
SEQ ID 12: GAT GCA TGC TCA ATA AAG CTT GCC TGG AGT.

2 (twice amended). A pair of oligonucleotides according to claim 3, consisting essentially of a first oligonucleotide being 10-26 nucleotides in length and comprising

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at least a fragment of 10 sequential nucleotides of the sequence: SEQ ID 1: G GGC GCC ACT GCT AGA GA and a second oligonucleotide being 10-26 nucleotides in length and comprising at least a fragment of 10 sequential nucleotides of the sequence SEQ ID 5: CTC AAT AAA GCT TGC CTT GA.

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Please enter the following new claims:

13 (new). A pair of oligonucleotide primers consisting of:

(i) a first hybridizing oligonucleotide selected from the group consisting of:

SEQ ID 1: G GGC GCC ACT GCT AGA GA;

SEQ ID 2: G TTC GGG CGC CAC TGC TAG A; and

SEQ ID 3: CGG GCG CCA CTG CTA; and

(ii) a second hybridizing oligonucleotide selected from the group consisting of:

SEQ ID 4: CTG CTT AAA GCC TCA ATA AA;

SEQ ID 5: CTC AAT AAA GCT TGC CTT GA; and

SEQ ID 12: GAT GCA TGC TCA ATA AAG CTT GCC TGG AGT.

14 (new). A method for the detection of HIV-1 nucleic acid in a sample, comprising the steps of subjecting the sample to a nucleic acid amplification reaction under suitable conditions using a pair of oligonucleotides according to claim 13, and suitable amplification reagents, and detecting the presence of amplified HIV-1 nucleic acid.

Remarks

This is in response to the Official Action mailed April 5, 2002. The points raised therein are addressed below in the order originally set forth.

To narrow the issues, the claims have been amended above to direct them to sequences up to 26 nucleotides in length. Support for such amendment is found in the specification at page 5 lines 24-28. Entry of the amendment

Newly submitted claim 13 is directed to a particular embodiment of the invention (*i.e.*, the particular SEQ ID NO:s recited in claim 1). No new issues are raised, it is respectfully submitted that this claim is clearly allowable over the cited art, and a formal indication of allowability thereof is respectfully requested. New claim 14 likewise corresponds to existing claim 5, except that it depends upon claim 13 rather than claim 1.

Claims 1-9, 11 and 12 stand rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is respectfully traversed. First, the claims of record recite specific structures, by reference to six specific SEQ ID NO:s, rather than a generic recitation of properties. Second, the case cited by the Examiner for the proposition of a "possession" test has since been vacated by the Federal Circuit in Enzo Biochem, Inc v. GenoProbe Inc. (July 15, 2002). While applicants agree with and appreciate the Examiner's diligence in attempting to maintain and apply the appropriate law in the face of changing precedent from the CAFC, it is respectfully submitted that, since no authority beyond vacated dicta supports the alleged possession test, this rejection should now be withdrawn. It is further noted that, even if such a possession test does exist, claims such as those of record, which specifically recite the structure claimed by reference to particular SEQ ID NO:s, would surely pass such a test.

Claims 1-9, 11 and 12 are rejected under the first paragraph of 35 USC 112 as lacking enablement. This rejection is respectfully traversed. As noted above, the claims of record are all directed to particular sequences. They do not encompass sequences of other species, as was the case in the cited *University of California v. Eli Lilly and Co.* decision. No reason to doubt that skilled workers would be able to carry out the invention without undue experimentation is set forth or found on the record. The claims have been amended to focus on preferred embodiments and reduce the number of sequences encompassed, as noted above. Finally, a Rule 132 Declaration of Bob van Gemen setting forth evidence demonstrating that the instant invention may be carried out

by skilled persons is submitted concurrently herewith. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

Claims 1-5, 7-9 and 11-12 stand rejected as anticipated or obvious over US Patent No. 6,001,558 to Backus et al. This rejection is respectfully traversed. The Backus patent, as far is it refers to the amplification and detection of HIV-1, discloses and claims always primer sets of at least 4 oligonucleotide primers [hence, of at least two primer pairs][see page 2 lines 5-10 and page 3, lines 25-51]. Obviously the inventors had no confidence in an effective use of only one single primer pair for the amplification and detection of HIV-1. Clearly, Backus et al. were convinced that an effective amplification and detection of HIV-1 can only be carried out using a combination of at least two primer pairs. Consequently, Backus et al. selected primer pairs taken from various HIV-1 POL and HIV-1 LTR sequences [see the sequences listed at page 3, lines 10-24 and table 1 at page 12] for use in combination with other primer pairs. 18 potential HIV-1 primer pairs were screened [see table 1 at page 13] for use as primer pairs in combination with at least one other primer pair. The first 16 pairs of this table have all sequences derived from the LTR region of HIV-1 [which region contains 634 nucleotides in total]; the last 2 pairs [7/27 and 7/8] are derived from the POL region. Only 2 pairs out of those 16 LTR primer pairs originate from the same part of the LTR region as disclosed and claimed in the present application, namely the pairs 2/4 and 24/4; the primers 2 and 24 being forward primers and 4 being the reverse primer [see page 11, lines 25-29].

In a co-amplification experiment of the POL primer pair 7/8 with all LTR primer pairs individually [see page 12 line 51 up to page 13 line 11], which co amplification is the Backus et al. invention, the primers 24 and 4 did not even meet their criteria for well performing primers [see page 13, line 8-10].

In conclusion, Backus et al. neither teach nor suggest the present invention, and in fact teach away from the instant invention. To avoid potential overlap with Backus et al. for novelty purposes, the claims have been amended to recite lengths up to 26, and emphasize that the present claims are directed to a single pair of primers *consisting*

essentially of a first hybridizing oligonucleotide and asecond hybridizing oligonucleotide. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

Claims 1-9, 11 and 12 stand rejected as obvious over **Montagnier et al.** in view **Backus et al.** and **Research Genetics**. This rejection is respectfully traversed for the same reasons set forth above, and for the reasons set forth in applicants response of June 13, 2001 with respect to Montagnier et al. and Research Genetics, which remarks are incorporated herein. Finally, as supporting evidence of nonobviousness, enclosed herewith is a Rule 132 Declaration of Bob Van Gemen, which describes that the design of the primer pair according to the invention resulted in a specific and sensitive assay superior to commercially available assays as discussed. While applicants respectfully disagree that any *prima facie* case of obviousness has been established, it is respectfully submitted that this evidence would rebut such a *prima facie* case.

It is respectfully submitted that this application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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Enclosure: Rule 132 Declaration of Bob van Gemen

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231, on September 5, 2002.

Vickie Diane Prior
Date of Signature: September 5, 2002